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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/715,324
Filing Date: November 17, 2003
Appellant(s): HUNT ET AL.

Linda L. Palomar
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 24, 2006 appealing from the Office action mailed February 21, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5558084	Daniell et al	9-1996
5349946	McComb	9-1994
5031612	Clementi	7-1991

5546933 Rapoport et al 8-1996

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 2, 16, 17, 18, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Daniell et al (US 5,558,084). Daniell shows the breathing assistance apparatus having an electrical input power to activate a heater capable of humidifying the gas at the desired level, and a controller (11, 16) to determine the parameter such as the temperature of the humidified gas which relates to the flow rate of the gas. The heater includes the conduit heater (10) and the water heater (20), and Daniell further shows an ambient external temperature sensor (45), a humidification chamber (3) having the water heater (20) and a water heater sensor/chamber sensor (8) to monitor the parameter such as the temperature of the water heater, the controller which monitors or regulates the desired heating temperature with the input of the external temperature indicated by the external temperature sensor, a connector means (66) which enable to correctly connect the conduit heater to the controller, and an indicator (67, 62) which indicates proper functions of the apparatus.

Claims 3-7, 13, 14, 19-23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniell (US 5,558,084). Daniell shows the apparatus and method claimed except explicitly showing the controller to continuously monitor the claimed parameter and to follow the claimed steps. Daniell teaches that the heating elements are controlled in response to the temperature sensors that measure the temperature of the water heater as well as the conduit heater and the ambient temperature, and as the temperature falls or arises due to the surrounding conditions, the heaters are further controlled to be turned off or on. (See column 2, lines 53-64;

column 3, lines 20-27; column 4, lines 34-58). While the Daniel does not shows explicitly show the sequence of the claimed steps, it would have been obvious to provide the controller with such monitoring processes or steps to monitor the changes in the threshold parameter values, including the changes in the temperatures, flow rate, or any other related parameters, so that the power to the water heater as well as the conduit heater can be continuously adjusted to maintain the desired humidity or gas temperature as the they are susceptible to the surrounding elements to affect its efficiency to meet the desired humidified gas.

Claims 8, 9, 12, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniell et al (US 5,558,084) in view of McComb (US 5,349,946) or Clementi (US 5,031,612). Daniell shows the apparatus and method claimed except the gas supply means to supply gas to the humidifier. McComb shows a gas supply with a flow meter/sensor to supply gas and the processor to determine the desired humidity level at the given flow rate. Clementi also shows a gas supply such as a blower to provide the pressured gas flow to provide the desired humidified gas. In view of McComb or Clementi, it would have been obvious to one of ordinary skill in the art to adapt Daniell with the gas supply means to provide the air source that is humidified for the user and to control the rate at which the air/gas is provided.

Claims 10, 11 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniell in view of McComb or Clementi as applied to claims 8, 9, 12, 24 and 25 above, and further in view of Rapoport et al (US 5,546,933). Daniell in view of McComb or Clementi, shows the apparatus and method claimed except the gas supply having a fan with the variable speed electric motor. Rapoport shows a blower having a variable speed blower motor to supply air. In view of Rapoport, it would have been obvious to one of ordinary skill in the art to adapt

Daniell, as modified by McComb or Clementi, with the variable speed motor fan to control the amount of gas and the rate at which the gas is supplied.

(10) Response to Argument

With respect to Daniell, the applicant argues that the recited "parameter relating to the flow rate" means a parameter from which the flow rate can be determined or estimated without the need for any further measurements, and the applicant further argues that the temperature of the humidified gas is not related to the overall flow rate of the gas. This arguments are not deemed persuasive.

According to the applicant's specification, the parameter relating to the flow rate can be estimated based on the parameters that are already available to the controller (page 7, lines 21-24). It is noted that the parameters that are available to the controller include the power input to the heater plate to achieve and maintain the desired temperature of the humidified gases, and the specification further discloses that the controller estimates the power to the heater to achieve a given humidity and or temperature of the gases at the top of the humidifier chamber or it estimates the temperature to achieve a given power (page 8, lines 2-8). This disclosure illustrates that either the power of the heater plate or the temperature of the gases can be used as the parameter that determines or estimates the flow rate of the gases.

Daniell discloses in column 2, lines 56-58, a controller that monitors the temperature of the heating plate and the temperature of the humidified gases, and the examiner indicated that the temperature of the humidified gases is a parameter that relates the flow rate of the gases. Having higher gas temperature, higher pressure would be inside the humidified chamber which would allow faster flow rate out of the humidification chamber through its outlet. The applicant argues

that this position taken by the examiner is flawed. It is noted that the examiner position is based on the well known principle of the ideal gas law where PV=nrT where P(pressure) is related directly proportional to T(temperature) given that V(volume) is constant. In this case the volume is the humidifier chamber having a constant volume. Based on this ideal gas law, the examiner concludes that the parameter such as the temperature of the humidified relates to the flow rate where higher the gas temperature would lead to higher gas flow. As in the final office action, the examiner stated that the flow rate can be controlled in various ways but one of the ways can be controlling the temperature of the gases as is done in Daniell.

With respect to the control strategy recited in claims 3-7, 13, 14, 19-23 and 29, the applicant argues no disclosure or suggestion is shown by Daniell. Daniell shows the claimed parameter relating to the flow rate of the gases, and with respect to the continuous monitoring of the said parameter, Daniell teaches the control circuit that monitors and controls the temperature of the heater plate and the temperature of the humidified gases. It is further disclosed that the humidified gases are governed by the ambient temperature. (Column 2, line 53 to column 3, line 26). The ambient temperature is a changing variable that continuously affects the temperature of the humidified gases, and Daniell discloses that the ambient temperature transducer and difference temperature selector output that is supplied to an op-amp 44 which controls the heater plate. Depending upon such output, the heater plate is either turned on or off. This supports the recited continuous monitoring system including the monitoring of the recited parameter. Thus, while Daniell does not explicitly show the claimed steps, it would have been obvious to one of ordinary skill in the art to include the recited monitoring processes or steps for continuously

adjusting and maintaining the desired humidity or gas temperature of the breathing apparatus to meet the desired humidified gas and its flow rate.

With respect to claims 16 and 31, the applicant argues Daniell fails to show an output indicative of a correction connection between a conduit heater and a controller. The applicant further argues Daniell discloses an alarm which sounds when something is incorrectly connected but not when correctly connected. This argument is not deemed persuasive. Figure 5 of Daniell clearly shows a conduit heater being connected to a controller of the humidifier and an alarm that sounds off when it senses undesirable circumstances or faults (column 5, lines 4-9). It is noted that no audio alarm state itself is an output indicative of having correct system including a correction connection between the conduit heater and the controller. Thus, the applicant's argument is not deemed persuasive.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Sang Paik

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PRIMARY EXAMINER

Conferees:

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